

## EIC Recommendation

### NSAC LRP, May 4, 2007

**We recommend the allocation of resources to develop accelerator and detector technology necessary to lay the foundation for a polarized Electron Ion Collider. The EIC would explore the new QCD frontier of strong color fields in nuclei and precisely image the gluons in the proton.**

*Without gluons there are no protons, no neutrons, and no atomic nuclei. Interactions among gluons determine the unique features of strong interactions. However, gluon properties in matter remain largely unexplored. Recent theoretical breakthroughs and experimental results suggest that both nucleons and nuclei when viewed at high energies appear as dense systems of gluons, creating the strongest fields in nature. The emerging science of this universal gluonic matter drives the development of a next generation high luminosity electron ion collider. Polarized beams in the EIC will give unprecedented access to the spatial and spin structure of gluons in the proton. The EIC embodies our vision for reaching the next QCD frontier. Realization of an EIC will require advancements in accelerator science and technology, detector R&D, and continued theoretical development.*